SBC81200

LGA775 Full-size
All-in-One
CPU Card Series

User's Manual

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ESD Precautions

Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This helps to discharge any static electricity on your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

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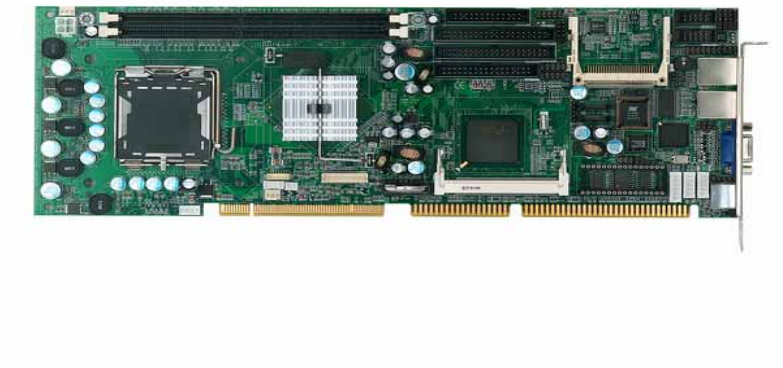
Chapter 1
Introduction

1.1 General Description



The **SBC81200** CPU card is an industrial grade CPU card incorporating the Intel® 865G ChipSet, ensuring its compatibility with PCI bus passive backplanes. Its 6-layer structure reduces signal noise and built-in power management feature. These advanced concepts along with the PCI Local Bus architecture bring outstanding performance to Windows-based applications.

Designed for the professional embedded developers, the LGA775 all-in-one **SBC81200** CPU card is virtually your ultimate one-step solution to various applications.

1.2 Specifications

- **Chipset:** Intel® 865G
- **CPU Socket:** LGA775
- **CPU:** Intel® Pentium 4 FSB 533MHz/800MHz
- **L2 Cache:** Integrated in CPU
- **BIOS:** Phoenix AwardBIOS Rev.6.00
- **System Memory:**
  - 2 x 184-pin DDR DIMM sockets
  - Maximum up to 2GB DDR

CPU FSB	DDR Type	DDR Frequency
800MHz	PC3200/PC2700/PC2100	400/333*/266MHz
533MHz	PC2700/PC2100	333/266MHz

*Because limited of chipset, when using FSB800Mhz CPU, PC2700 DDR(333Mhz) only support 320Mhz.

- **IDE Interface:** 2 bus mastering EIDE up to four devices, Ultra DMA 100 supported
- **FDD Interface:** Supports up to 2 drives
- **Serial Ports:**Two 16550 UARTs ports with 16 byte as two RS232.
- **Parallel Ports:** One parallel port with ECP/EPP/SPP supported
- **VGA Controller:**
  - VGA On-chip Intel® 865G.
  - Supports up to 2048x1536 at 75 Hz resolution on non-interlaced CRT monitors
  - 18Bits LVDS LCD(Optional)
- **Ethernet:**
  - Intel 82547GI is Giga LAN controller.
  - Intel 82562ET is 10/100Mbps LAN controller
  - Wake On LAN support

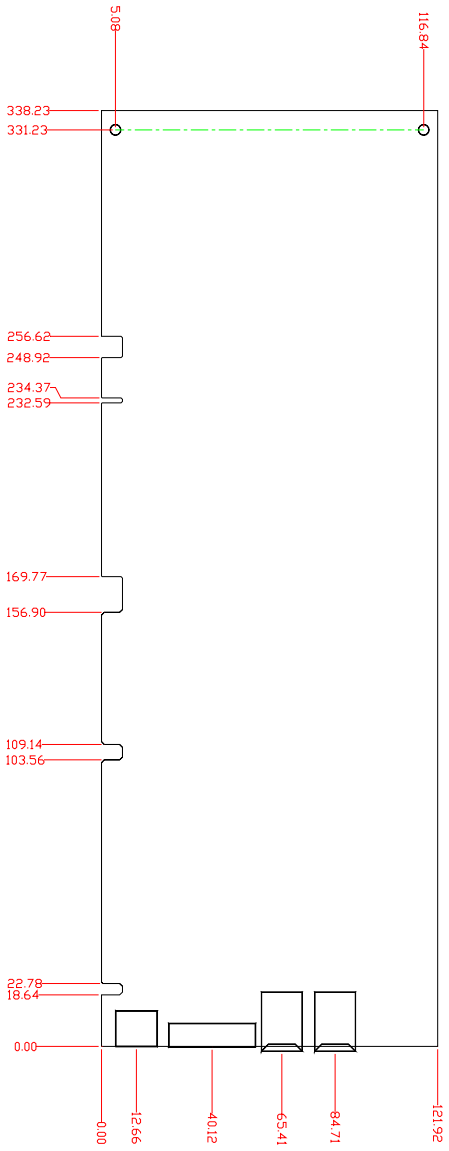
- **USB Interface:**
  - 4 USB ports; USB Spec. Rev. 2.0 compliant.
- **Audio :**
  - Realtek ALC202A
- **Compact Flash (Option):**
  - Type II Socket
- **Mini PCI (Option):**
  - Socket-s 124 Pin
- **Disk On Chip (Option) :**
  - Socket IC 32 Pin
- **Hardware Monitoring:**
  - Controller: Winbond W83627HG-AW detection of CPU temperature, System temperature, Power failure and Fan speed.
- **Watchdog Timer:**
  - Generates the system reset.
  - Software programmable time interval and hardware reset only.
  - 255 level, 255 seconds
- **Dimensions:**122(W) x 338(L) mm

NOTE:Specifications are subject to change without notice.

1.3 Utilities Supported

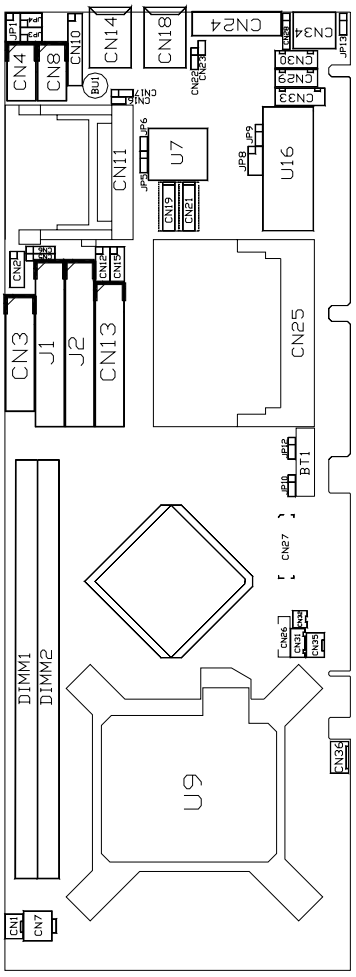
- Intel® 865G Utility and Drivers
- Ethernet Utility and Drivers
- VGA Drivers
- Audio Drivers

1.4 Board Dimensions



Chapter 2
Jumpers and Connectors

2.1 Board Layout



2.2 Jumper Settings

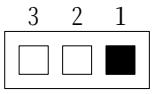
Making the proper jumper settings configures the **SBC81200** to match the needs of your application. The following summary table lists all onboard jumpers and their corresponding functions and/or default settings.

Jumper	Description	Jumper setting
JP1	COM2 RS232 setting	Short 1-2 (Default) Short 3-4,7-8 for RS422 Short 5-6,7-8 for RS485
JP3	COM RS232 setting	Short 3-5,4-6 (Default) Short 1-3,2-4 for RS422/485
JP4	COM RS232 setting	Short 3-5,4-6 (Default) Short 1-3,2-4 for RS422/485
JP5	Compact Flash Power Select (Option)	Short 1-2 for 3.3V (Default) Short 2-3 for 5V
JP6	Compact Flash Master/ Slave (Option)	Short for Master (Default) Open for Slave
JP8	Disk On Chip Memory Segment (Option)	Short 1-2 D0000-D1FFF (Default) Short 3-4 D2000-D3FFF Short 5-6 D4000-D5FFF Short 7-8 D6000-D7FFF
JP9	Watchdog Trigger Mode	Open (Default) Short 2-3 for Reset
JP10	LCD Voltage(Option)	Short 1-2 for 3.3V(Default) Short 2-3 for 5V
JP12	CMOS Clear jumper	Short 1-2 for Normal (Default) Short 2-3 for Clear CMOS
JP13	External Keyboard /Mouse Wake up : Disabled	Short 1-2(Default) Short 2-3 for Enable

2.2.1 COM2 RS232/422/485 Settings: JP1,JP3,JP4

COM2	JP3	JP4	JP1
RS-232 (default)	Short 3-5,4-6	Short 3-5,4-6	Short 1-2,7-8
RS-422	Short 1-3,2-4	Short 1-3,2-4	Short 3-4,7-8
RS-485	Short 1-3,2-4	Short 1-3,2-4	Short 5-6,7-8

2.2.2 CompactFlash Power Select Settings (Option): JP5

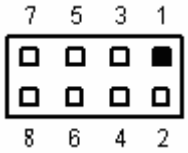


Options	Settings
+3.3V	Short 1-2 (default)
+5V	Short 2-3

2.2.3 CompactFlash Master/Slave Settings (Option) : JP6

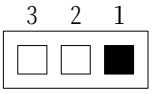
Options	Settings
Master	Short (default)
Slave	Open

2.2.4 DiskOnChip Memory Segment (Option): JP8



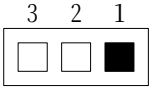
Options	Settings
D0000 – D1FFF	Short 1-2 (default)
D2000 – D3FFF	Short 3-4
D4000 – D5FFF	Short 5-6
D6000 – D7FFF	Short 7-8

2.2.5 Watchdog Trigger Mode Setting: JP9



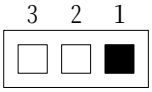
Options	Settings
RESET	Short 2-3
Disabled	Open(default)

2.2.6 LCD Voltage Settings (Option): JP10



Options	Settings
+3.3V	Short 1-2 (default)
+5V	Short 2-3

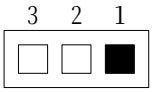
2.2.7 CMOS Clear Jumper: JP12



Options	Settings
Clear CMOS	Short 2-3
Normal	Short 1-2 (default)

2.2.8 Keyboard Weak Up Support Settings: JP13

SBC81200 supports keyboard weak up. The function can be enabled or disabled by JP13.



Options	Setting
Enable	Short 2-3
Disable	Short 1-2 (default)

2.3 Connectors

The connectors allow the CPU card to connect with other parts of the system. Some problems encountered by your system may be a result from loose or improper connections. Ensure that all connectors are in place and firmly attached. The following table lists the function of each connector on the **SBC81200**.

Connectors	Label	Connectors	Label
General Output Connector	CN10	Primary IDE Connector	J1
Printer Port Connector	CN3	Secondary IDE Connector	J2
COM1	CN4	CF Connector (Option)	CN11
COM2	CN8	SATA Port 1 Connector	CN19
USB Port1,2 Connector	CN15	SATA Port 2 Connector	CN21
USB Port3,4 Connector	CN12	FDD Connector	CN13
System BIOS	U7	IrDA Connector	CN28
CRT Connector	CN24	Mini PCI Connector (Option)	CN25
Keyboard/Mouse Connector	CN34	CPU FAN Connector	CN36
External Mouse Connector	CN30	SYSTEM FAN1Connector	CN35
External Keyboard Connector	CN29	SYSTEM FAN2 Connector	CN1
Ethernet Connector 1	CN18	Internal Buzzer	BU1
Ethernet Connector 2	CN14	Internal Battery	BT1
Ethernet 1 External Speed LED	CN22	LGA775 CPU Socket	U9
Ethernet 2 External Speed LED	CN17	184-pin DDR Memory Channel A	DIMM2
Ethernet 1 External Link/ACT LED	CN23	184-pin DDR Memory Channel B	DIMM1
Ethernet 2 External Link/ACTLED	CN16	Audio Connector	CN2
TV Out 1(AV) (Option)	CN32	CD Input Connector	CN6
TV Out 2(S) (Option)	CN31	DiskOnChip Socket	U16
AXIOMTEK LVDS LCD Interface (Option)	CN27	ATXSB5V Power Connecor	CN33
LCD Power Connector (Option)	CN26	ATX12V CPU Power Connector	CN7

NOTE:

SBC81200VGE Lan1 is Intel 82547GI Giga LAN and LAN2 is Intel 82562ET 10/100Mbps LAN, Audio.

SBC81200VG Lan is Intel 82547GI Giga LAN, Audio.

SBC81200VE LAN is Intel 82562ET 10/100Mbps LAN, Audio.

Chapter 3
Installation

This chapter describes the hardware installation procedures on the **SBC81200** all-in-one LGA775 CPU card. The following is a list of typical peripherals required to build a minimum system:

- Power supply and passive backplane
- IBM™ PC/AT keyboard
- Display monitor
- Floppy or hard disk with MS-DOS or Flash Disk emulator

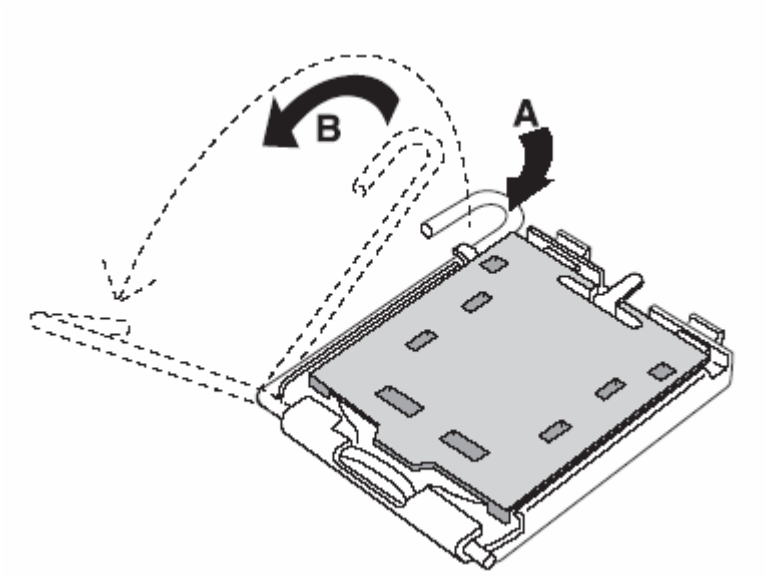
3.1 System Memory

The **SBC81200** industrial CPU card supports two 184-pin DDR sockets for a maximum total memory up to 2GB.

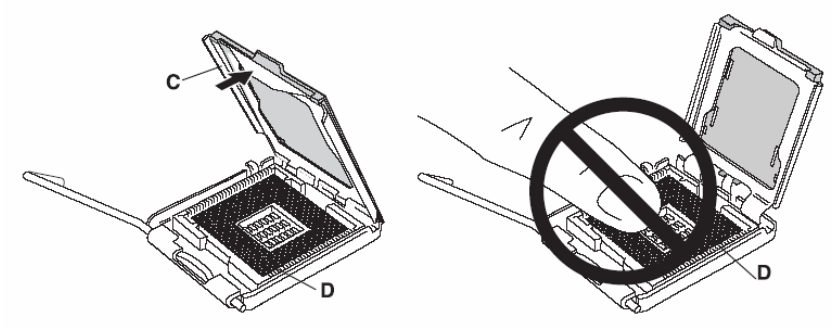
3.2 CPU Installation

This processor is intended to be professionally installed. Before installing the processor, please review the additional integration notes available at http:/www.intel.com/go/integration. Take proper electrostatic dis-charge(ESD)precautions suchas using appropriate ground straps, gloves and ESD mats.

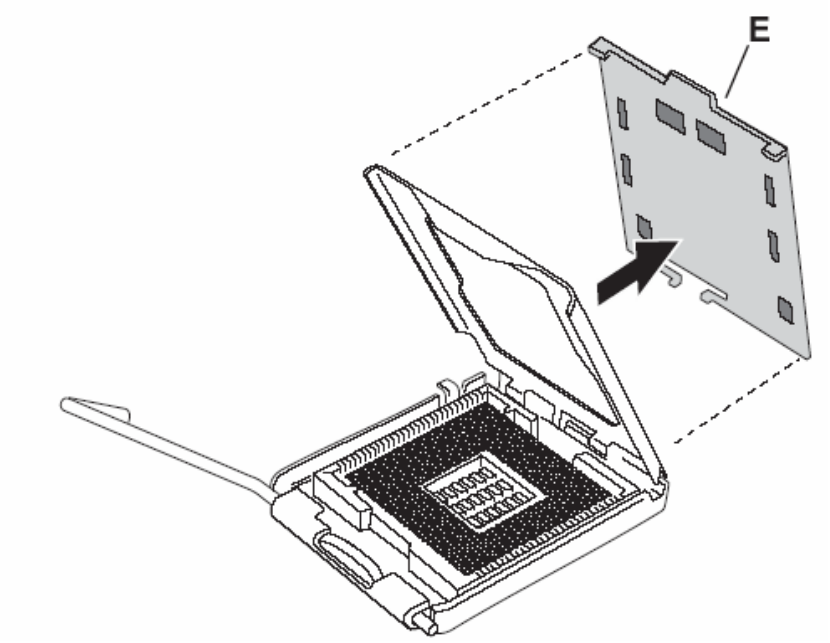
1.Open socket lever by pushing level down and away from socket (A). Lift lever (B).



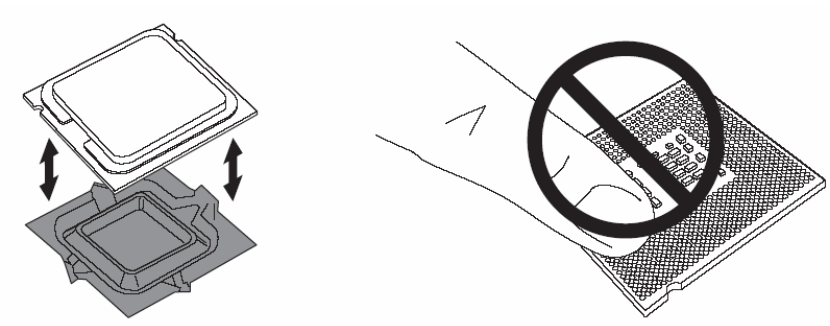
2.. Open load plate (C). DO NOT TOUCH SOCKET CONTACTS (D).



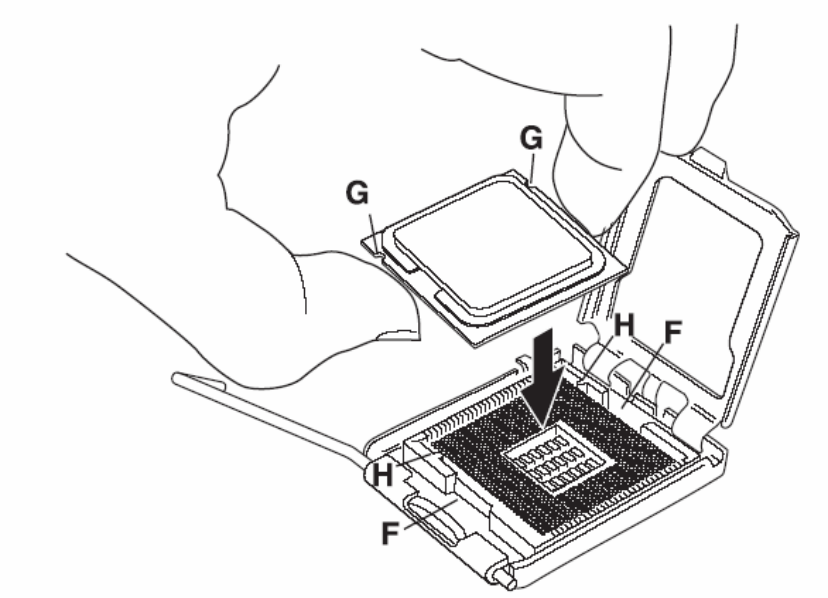
3.. Remove protective cover (E) from load plate. Do not discard the protective cover. Always replace the socket cover if the processor is removed from socket.



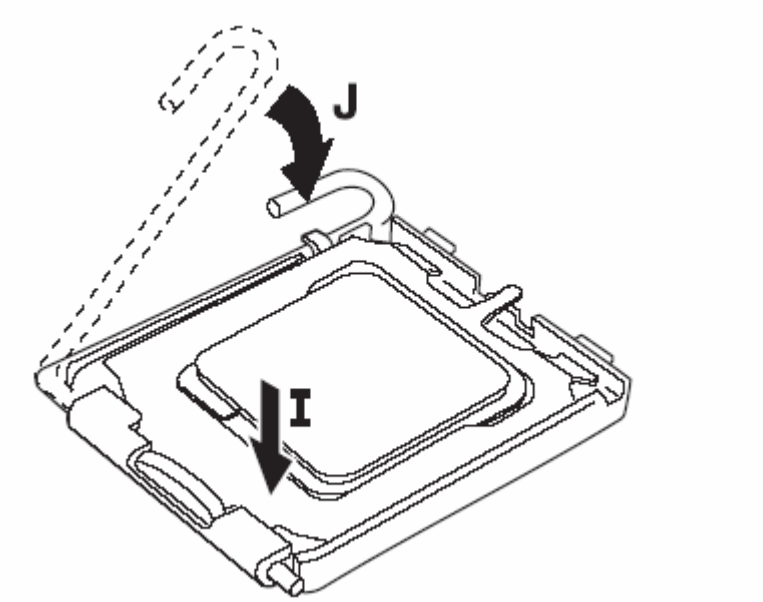
4.. Remove processor from protective cover. (HOLD PROCESSOR



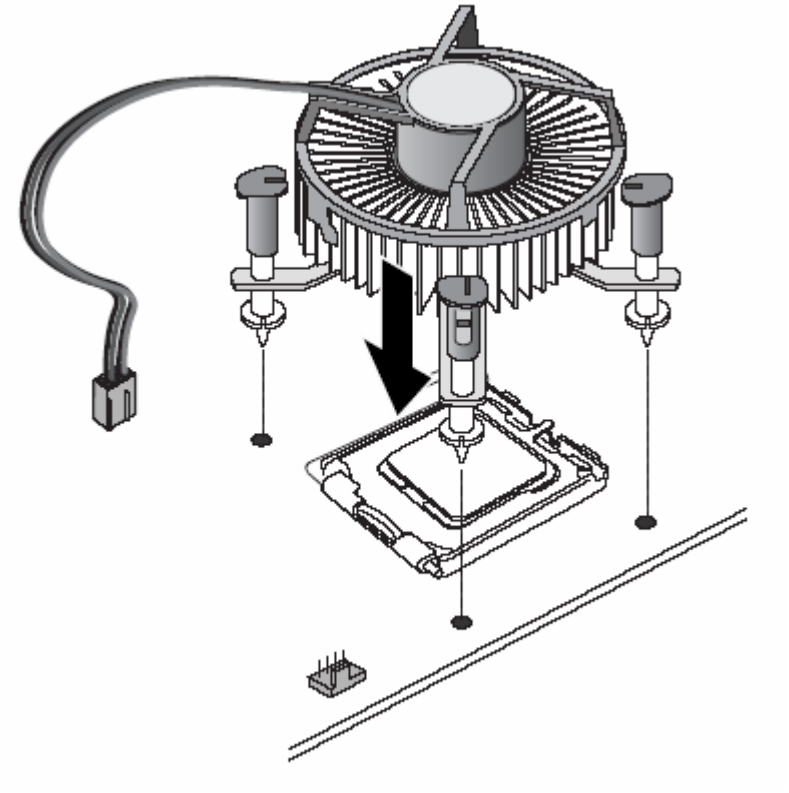
5.. Hold processor with thumb and index finger oriented as shown. [Enter finger align to socket cutouts(F).] Align notches (G) with socket (H). Lower the processor straight down without tilting or sliding the processor in the socket.



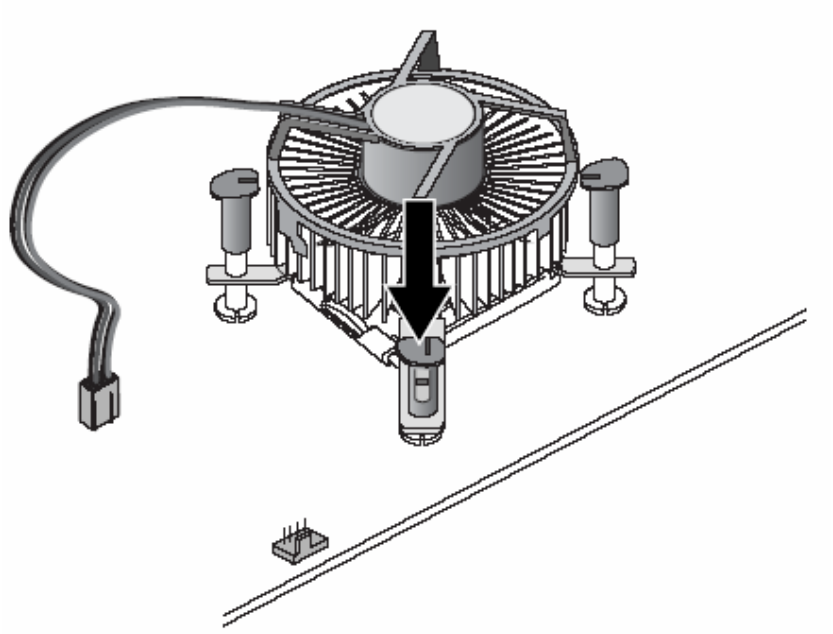
6..Close load plate. Pressing down no load plate (I) close and engage socket lever (J).



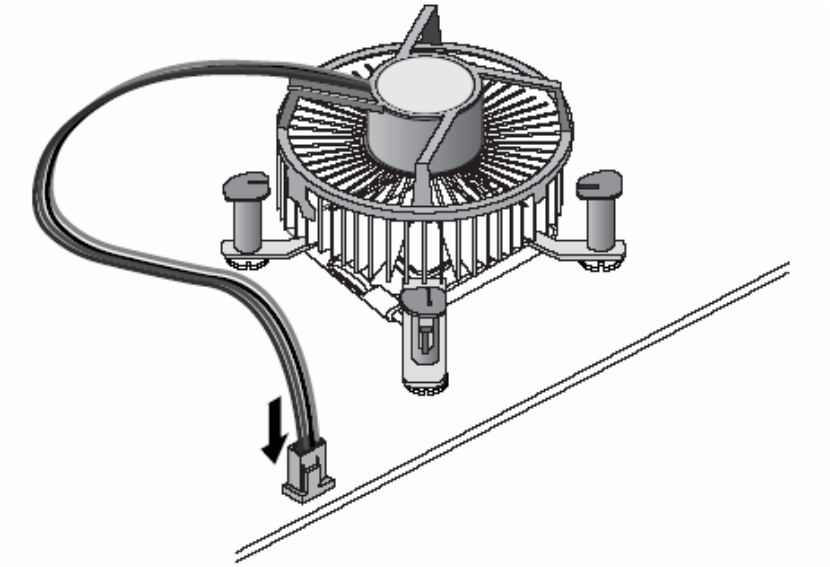
7.. With the CPU BOARD INSTALLED IN THE CHASSIS place The fan heatsink onto the CPU BOARD, aligning the features through the holes (Be careful not to damage the thermal interface material attached to the bottom of the fan heatsink.)



8.. Push down on the top of each fastener while holding the fan heat sink in place. You should hear a " click " when pushing down each fastener. Check that all four fastener are securely attached.

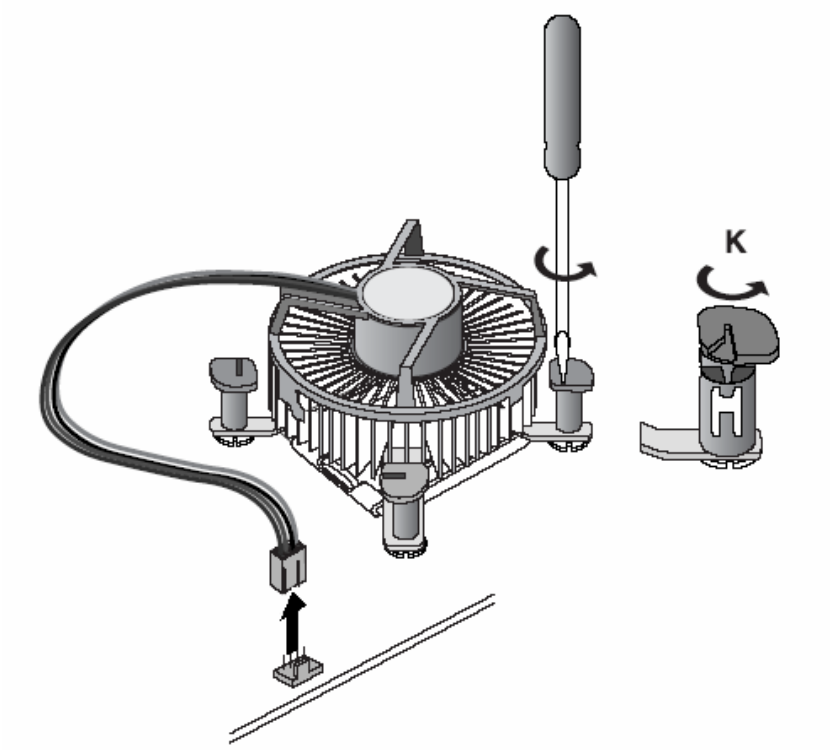


9.. Connect the processor 4 wire fan cable connector to the CPU board 4 pin CPU fan header. (The processor 4 wie fan cable connector can be connect to the CPU board 3 pin CPU fan header if a 4 pin CPU fan header is unavailable).

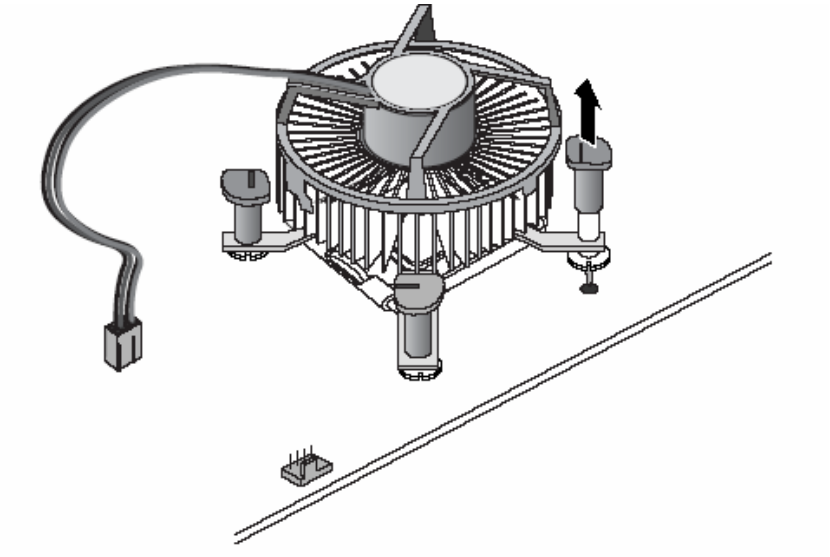


BOXED INTEL PROCESSOR REMOVAL INSTRUCTIONS

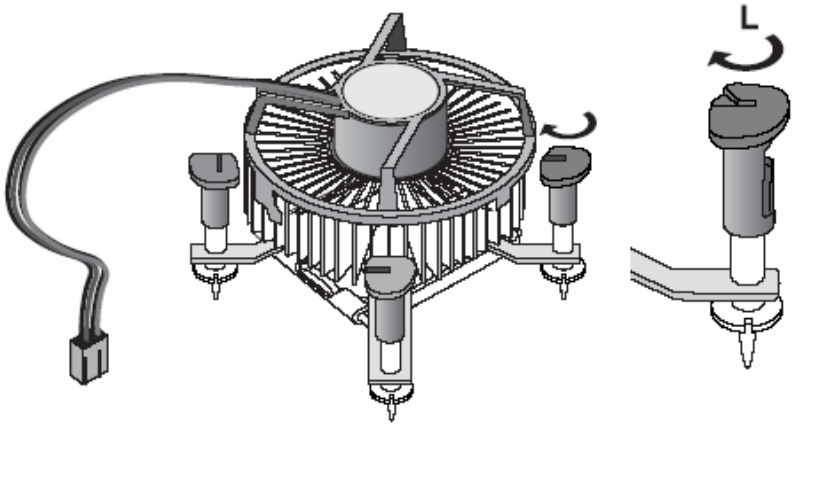
1.. To remove the fan heatsink, disconnect fan cable. Rotate each1/4 turn COUNTERCLOCKWISE using a flathead screwdriver [Orient the fasteners as shown (K)].



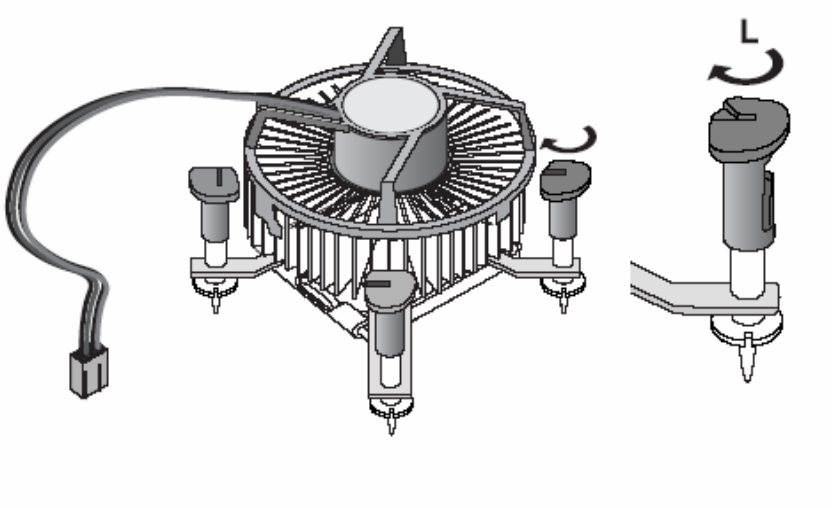
2.. Pull up on each fastener to release them. Remove the fan heatsink.



3..To reset the fasteners, turn each one back 1/4 turn CLOCKWISE before reinstalling. [Orient the fasteners Aas shown(L)].



4.. To remove the processor do steps 1-5 in reverse. Be careful to protect the socket and processor from any foreign matetial contamination. REINSTALL SOCKET AND PROCESSOR PROTECTIVE COVERS.



3.3 Configuring Power Supply

3.3.1 ATX Power Supply

Follow these instructions if the system has an ATX power supply installed.

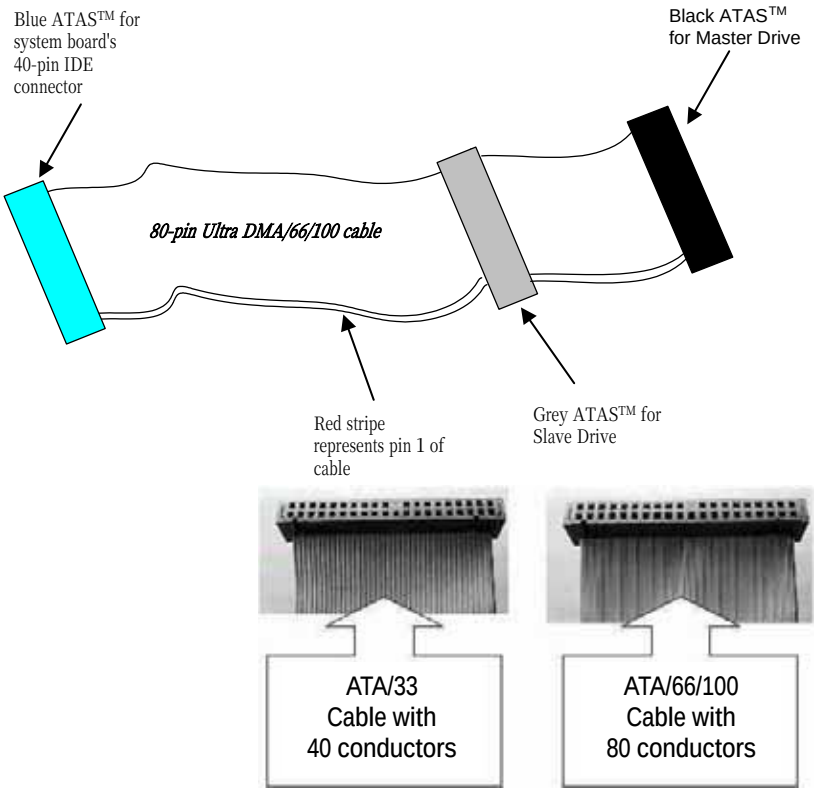
Install the ATX Power Control Connector cable to the designated ATX power control connector on your backplane. The ATX Power Control Connector cable is a 6-pin cable that comes with the **AXIOMTEK BACKPLANE** packaging.

3.3.2 AT Power Supply

When using an AT power supply in your system, don't need the ATX Power Control Connector cable.

3.4 Ultra DMA/66/100 Drive Installation

To accommodate the fast transfer rate of Ultra DMA/66/100, an 80-conductor cable (with 40 pin connectors on both ends) is necessary when installing Ultra DMA/66/100 drives. The **SBC81200**, on this aspect, can support a total of 4 Ultra DMA/66/100 drives. It is through the IDE Connector (**J1, J2**) where the 80-conductor cable is connected. The diagram below illustrates the proper installation procedure, including color coding of connectors, of the 80-conductor cable.


Blue ATAS™ for system board's 40-pin IDE connector
Black ATAS™ for Master Drive
80-pin Ultra DMA/66/100 cable
Red stripe represents pin 1 of cable
Grey ATAS™ for Slave Drive
ATA/33 Cable with 40 conductors
ATA/66/100 Cable with 80 conductors

3.5 Completing Installation

To complete the installation, follow the steps listed below.

1.Make sure the power is OFF.

2.Set the configuration jumpers according to the jumper settings on Chapter 2.

3.Install the **SBC81200** CPU card into one of the slots on the passive backplane. You may allow the **SBC81200** to stand alone as a single board computer.

4.Connect the I/O cables and peripherals, i.e. floppy disk, hard disk, monitor, keyboard, power supply and etc. to the CPU board.

NOTE: *The color of pin one is usually red or blue, while others are gray.*

5. Turn ON the system power.

Chapter 4
Hardware Description

This chapter gives a detailed explanation of the hardware features onboard the **SBC81200** all-in-one LGA775 CPU card.

4.1 Microprocessors

The **SBC81200** supports Intel® Celeron/Pentium 4 CPUs. Systems based on these CPUs can be operated under UNIX, OS/2, Linux, Windows 2000/XP, and MS-DOS environments. The system's performance depends on the installed CPU on the board.

4.2 BIOS

The system BIOS used in **SBC81200** is Award Plug and Play BIOS. The **SBC81200** contains a single 4MB Flash EPROM. For more detailed information, refer to Chapter 7 for a complete description of the BIOS setup utility and the available features accompanying it.

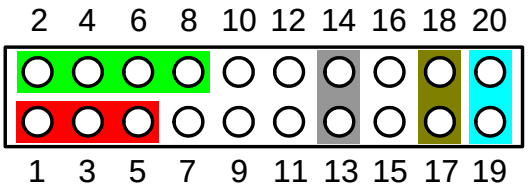
4.3 I/O Port Address Map

The CPU card communicates via I/O ports. It has a total of 1KB port addresses that can be assigned to other devices via I/O expansion cards.

Address	Devices
000-01F	DMA controller #1
020-03F	Interrupt controller #1
040-05F	Timer
060-06F	Keyboard controller
070-07F	Real time clock, NMI
080-09F	DMA page register
0A0-0BF	Interrupt controller #2
0F0	Clear math coprocessor busy signal
0C0-0DF	DMA controller #2
0F1	Reset math coprocessor
0F8-0FF	Math processor
F0-1F8	Fixed disk controller
200-207	Game port
300-31F	Prototype card
360-36F	Reserved
378-37F	Parallel port #1
3B0-3BF	MDA video card (including LPT1)
3C0-3CF	EGA card
3D0-3DF	CGA card
3F0-3F7	Floppy disk controller
3F8-3FF	Serial port #1 (COM1)
2F8-2FF	Serial port #2 (COM2)

4.4 General Output Connector: CN10

CN10



Power LED

This 3-pin connector, designated at ***Pins 1, 3,*** and ***5*** of ***CN10***, connects the system power LED indicator to its respective switch on the case. ***Pin 1*** is +, and ***pin 5*** is assigned as -. The Power LED lights up when the system is powered ON.

External Speaker and Internal Buzzer Connector

Pins 2, 4, 6, and ***8 of CN10*** connect to the case-mounted speaker unit or internal buzzer. ***Short pins 4-6*** when connecting the CPU card to an internal buzzer. When connecting an external speaker, set these jumpers to ***Open*** and install the speaker cable on ***pin 8*** (+) and ***pin 2*** (-).

System Reset Switch

Pins 17 & ***18*** of ***CN10*** connect to the case-mounted reset switch and allow rebooting of your computer instead of turning OFF the power switch. This is a preferred method of rebooting in order to prolong the life of the system's power supply.

HDD Activity LED

This connector extends to the hard drive activity LED on the control panel. This LED will flash when the HDD is being accessed. ***Pins 19*** & ***20 of CN10*** connect the hard disk drive and the front panel HDD LED. ***Pins 19*** is -, and ***pin 20*** is assigned as +.

Reserved pins

Pins 7 and 9-16 of ***CN10*** are reserved pins.

Power switch

This 2-pin connectoris designed at ***Pin13*** and ***Pin 14*** of ***CN10*** connects the ATX power button of the front panel to the SBC81872 CPU board. Allow user controlling the power on/off

State of ATX power supply.

4.5 Enhanced IDE Interface Connector

The **SBC81200** includes a PCI bus enhanced IDE controller that can support master/slave mode and post write transaction mechanisms with 64-byte buffer, and master data transaction. This feature, connected via connector **J1** and **J2**, allows the **SBC81200** to handle 4 IDE drives.

J1,J2: IDE Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	Reset #	2	GND	3	Data 7
4	Data 8	5	Data 6	6	Data 9
7	Data 5	8	Data 10	9	Data 4
10	Data 11	11	Data 3	12	Data 12
13	Data 2	14	Data 13	15	Data 1
16	Data 14	17	Data 0	18	Data 16
19	GND	20	N/C	21	N/C
22	GND	23	IOW #	24	GND
25	IOR #	26	GND	27	IOCHRDY
28	N/C	29	N/C	30	GND-Default
31	Interrupt	32	N/C	33	SA1
34	N/C	35	SA0	36	SA2
37	HDC CS0 #	38	HDC CSI #	39	HDD Active #
40	GND				

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4.6 Display Interface

4.6.1 Flat Panel/CRT Interface Controller

The GMCH provides interfaces to a progressive scan analog monitor and DVO can drive a variety of DVOdevices (LVDS, and TV-Out).

• The GMCH has an integrated 350 MHz RAMDAC that can directly drive a progressive scananalog monitor up to a resolution of 2048x1536 at 75 Hz.

4.6.2 VGA/LVDS Panel Connectors

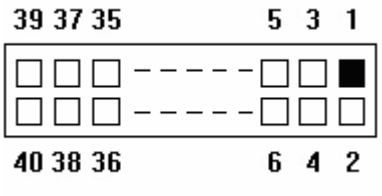
The **SBC81200 Series** has two connectors that support CRT VGA and LVDS panel displays, individually or simultaneously. **CN24** is a D-SUB 15-pin connector commonly used for the CRT VGA display, and **CN27** is 40-pin and **CN26** is 7-pin Hirose connector for LVDS panel connection(Option).

CN24: CRT/VGA Connector Pin Assignment

Pin	Signal	Pin	Signal	Pin	Signal
1	Red	2	Green	3	Blue
4	N/A	5	GND	6	AGND
7	AGND	8	AGND	9	+5V
10	GND	11	N/A	12	DDC DAT
13	Horizomtal Sync	14	Vertical Sync	15	DDC CLK

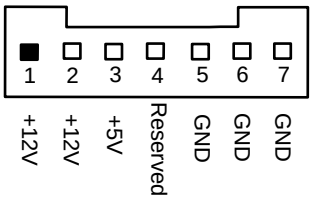
CN27: Connector for LVDS Panel (Option)

Pin	Description	Pin	Description
1	LCD Power+	2	LCD Power+
3	LCD Power+	4	LCD Power+
5	LCD Power+	6	LCD Power+
7	N/A	8	N/A
9	GND	10	GND
11	TXU3-	12	TXU0-
13	TXU3+	14	TXU0+
15	GND	16	GND
17	TXUCK-	18	TXU1-
19	TXUCK+	20	TXU1+
21	GND	22	GND
23	TXL0-	24	TXU2-
25	TXL0+	26	TXU2+
27	GND	28	GND
29	TXL1-	30	TXL3-
31	TXL1+	32	TXL3+
33	GND	34	GND
35	TXL2-	36	TXLCK-
37	TXL2+	38	TXLCK+
39	GND	40	GND



CN26 :LCD Power (Option)

Pin	Description
1	+12V
2	+12V
3	+5V
4	Reserved
5	GND
6	GND
7	GND



4.6.4 Flat Panel Connector Pin Description

Name	Description
TXU0-3	Channel 1 Data output
TXL0-3	Channel 0 Data output
+12V	+12V power controued by chip set
LCD Power+	LCD POWER By JP10
TXUCK	Channel 1 clock output
TXLCK	Channel 0 clock output

4.7 Floppy Disk Connector: CN13

The **SBC81200** provides a 34-pin header type connector, **CN13**, supporting up to two floppy drives. The floppy drives may be any one of the following types: 5.25" 360KB/1.2MB and 3.5" 720KB/1.44MB/2.88MB.

CN3: Floppy Disk Connector Pin Assignment

Pin	Description	Pin	Description	Pin	Description
1	GND	2	Reduce write Current	3	GND
4	N/C	5	GND	6	N/C
7	GND	8	Index #	9	GND
10	Motor enable A #	11	GND	12	Drive Select B #
13	GND	14	Drive select A #	15	GND
16	Motor enable B #	17	GND	18	Direction #
19	GND	20	STEP #	21	GND
22	Write data #	23	GND	24	Write gate #
25	GND	26	Track #	27	GND
28	Write protect #	29	GND	30	Read data #
31	GND	32	Side 1 select #	33	GND
34	Disk change #				

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4.8 Parallel Port Interface: CN3

The **SBC81200** onboard **CN3** is a multi-mode parallel port able to support:

- **Standard mode:** IBM PC/XT, PC/AT and PS/2™ compatible with bi-directional parallel port
- **Enhanced mode:** Enhance parallel port (EPP) compatible with EPP 1.7 and EPP 1.9 (IEEE 1284 compliant)
- **High speed mode:** Microsoft and Hewlett Packard extended capabilities port (ECP) IEEE 1284 compliant

The address select of the onboard parallel port in LPT1 (3BCH) or disabled is done by BIOS CMOS setup.

CN3 Parallel Port Connector Pin Assignment

Pin	Description	Pin	Description
1	Strobe #	14	Auto Form Feed #
2	Data 0	15	Error #
3	Data 1	16	Initialize #
4	Data 2	17	Printer Select In #
5	Data 3	18	GND
6	Data 4	19	GND
7	Data 5	20	GND
8	Data 6	21	GND
9	Data 7	22	GND
10	Acknowledge #	23	GND
11	Busy	24	GND
12	Paper Empty #	25	GND
13	Printer Select	26	

4.9 Serial Port Interface

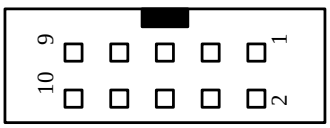
The serial interface onboard **SBC81200** consists of COM1 port (**CN4**) and COM2 (**CN8**) supports RS-232/422/485

4.9.1 Serial Ports IRQ Selection

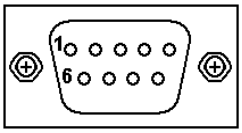
SBC81200 uses two 10-pin connectors for COM1 **(CN4)** and COM2 **(CN8)**. Interrupt Requests on COM1 and COM2 are selected via IRQ4 and IRQ3 respectively. Additionally, both ports can be enabled or disabled via BIOS setting.

RS-232/422/485 PIN Assignment: CN4,CN8

CN4 CN8	D-SUB 9PIN	Description		
		RS-232	RS-422 (CN8)	RS-485 (CN8)
1	1	Data Carrier Delect(DCD)	TX-	Data -
2	6	Data Set Ready(DSR)	NC	NC
3	2	Receive Date(RXD)	TX+	Data +
4	7	Request to Send(RTS)	NC	NC
5	3	Transmit Data(TXD)	RX+	NC
6	8	Clear to Send(CTS)	NC	NC
7	4	Data Terminal Ready (DTR)	RX-	NC
8	9	Ring Indicator(RI)	NC	NC
9	5	GND	GND	GND
10	X	NC	NC	NC



CN4/CN8



D-SUB 9PIN

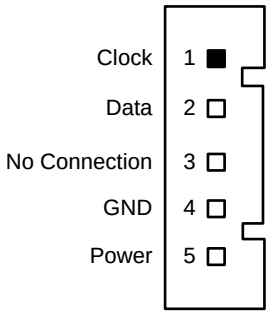
RS-485 Receive Data: COM2 RTS Register must be clear.

RS-485 Transmint Data: COM2 RTS Register must be set.

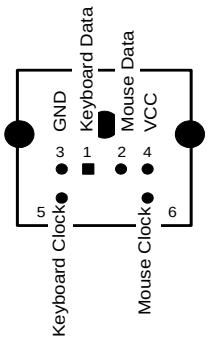
4.10 Keyboard and PS/2 Mouse Connectors

The **SBC81200** provides a keyboard **(CN29)** and Mouse **(CN30)** interface with two 5-pin connectors. **CN34** is a DIN connector for PS/2 keyboard and mouse connection.

CN29/CN30



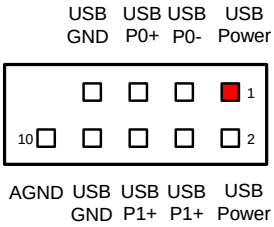
CN34



4.11 USB Connector

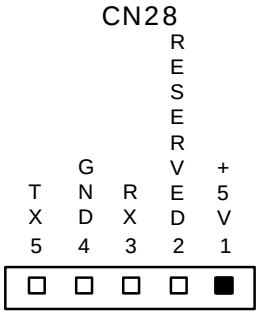
The Universal Serial Bus (USB) connector on the **SBC81200** is for installation of peripherals supporting the USB interface. **CN12/CN15** is the 9-pin USB connector on the **SBC81200**.

CN12/CN15



4.12 IrDA Connector

CN28 is a 5-pin IrDA connector for wireless communication.

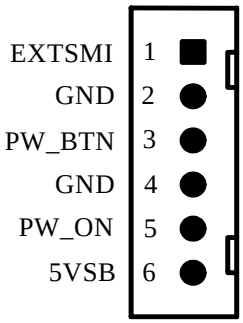


4.13 ATX SB5V Power Connector Connector

The interface enables and supports reliable power anagement through improved hardware and operating system coordination. The specification enables new power management technology to evolve independently in operating systems and hardware while ensuring that they continue to work together.

CN33 on the **SBC81200** is a 6-pin header connector that provides **ATX SB5V Power**.

CN33



4.14 ATX12V CPU Power Connector: CN7

This connector connected to an ATX12V power supply and used for CPU Core Voltage.

Important Note: Make sure your ATX12V power supply can provide 16A on the +12V lead and at least 1A on the +5V standby lead (+5VSB). The minimum recommended wattage is 250W or 300W for a fully configured system. The system may become unstable and may experience difficulty powering up if the power supply is inadequate.

4.15 Mini-PCI Connector(Option): CN25

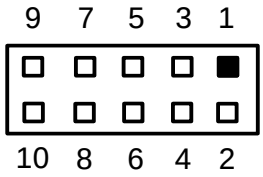
This mini-PCI connector is designed for "on-board" expansion. You don't need back plane to have another SCSI card, gigabit LAN card or IDE control card.

We prepare these types of mini-PCI card and them can be sold as accessories of SBC81200.

For the futher information, please refer the mini-PCI card's manual.

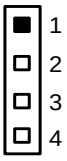
4.16 Audio Connector: CN2

Pin	Signal	Pin	Signal
1	MIC-IN	2	GND
3	Line In L	4	GND
5	Line In R	6	GND
7	Audio Out L	8	GND
9	Audio Out R	10	GND



4.17 CD ROM Input Connector: CN6

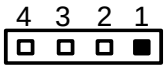
Pin	Description
1	CD In Left
2	GND
3	GND
4	CD In Right



4.18 TV Out Connector(Option): CN31, CN32

S-Video Out Connector: CN31

Pin	Description
1	Video GND
2	NC
3	C Output
4	Y Output



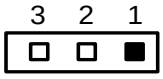
CVBS Out Connector: CN32

Pin	Description
1	CVBS Out
2	Video GND

4.19 Lan External LED: CN16,CN17,CN22,CN23

Lan Speed LED: CN17,CN22

Pin	Description
1	100 Speed (-)
2	+3.3V
3	1000 Speed (-)



If you ues 10Mbps Ethernet, this LED is not work.

Lan Link/Act LED: CN16,CN23

Pin	Description
1	+3.3V
2	Link/Active (-)

Chapter 5
Display Drivers

5.1 Introduction

The GMCH provides interfaces to a progressive scan analog monitor.

- The GMCH has an integrated 350 MHz RAMDAC that can directly drive a progressive scananalog monitor up to a resolution of 2048x1536 at 75 Hz.

5.2 Driver Disks' Contents

The driver diskettes that come with the **SBC81200 Series** package contains the following installation programs:

- Win2000 driver
- WinXP driver

5.3 Windows 2000 VGA Driver Installation

To install or upgrade the DirectX driver

Microsoft DirectX 8.0a must be installed prior to installing the video driver support on the **SBC81200 Series**.

If you've installed a retail version of Windows 2000 you'll need to install Microsoft DirectX 8.0a. This file can be download from

http://www.microsoft.com/windows/directx/default.asp

To install video support

If you have installed retail Windows you need to install the video driver. The driver is contained in the \SBC81200\Drivers\VGA subdirectory on the dirvers CD.

To install or upgrade the Intel 865G video driver:

1. Run SETUP.EXE from the driver directory on your drivers CD
2. Follow the onscreen directions to complete installation.
3. There may be messages about the driver not having a digital signature, select Yes to all these message boxes.
4. Upon successful completion you will be asked to reboot your computer, choose "Yes, I want to restart my computer now" if you have no other drivers to install. Otherwise, choose "No, I will restart my computer later" and continue to next step.

5.4 Windows XP VGA Driver Installation

To install video support

If you have installed retail Windows you need to install the video driver. The driver is contained in the \SBC81200\Drivers\VGA subdirectory on the dirvers CD.

To install or upgrade the video driver:

1. Run SETUP.EXE from the video driver directory.
2. Follow the onscreen directions to complete the installation.
3. At the end you will be asked to reboot the PC. Choose YES and press FINISH to exit the video driver installation.

Chapter 6
Ethernet

6.1 Introduction

The **SBC81200** is equipped with the high performance Plug and Play Ethernet interface which is fully compliant with the IEEE 802.3 standard, and consisting of the RJ-45 connector **(CN18 and CN19)**.

6.2 Features

- 10/100/1000BASE-T Triple-speed MAC
- PCI Express host interface
- Standards compliant WOL
- Large burst read

6.3 Drivers Supported

Bundled with popular software drivers, the **SBC81200** Ethernet interface allows great flexibility to work with all major networking operating systems including Windows 2000, XP, Linux 2.2, 2.4, Netware, Solaris x86 and UNIX.

> *NOTE:Before you begin the driver software installation, please see the detailed installation procedure from the Product Information CD-ROM and be sure to make installation and backup copies of the driver files.*

Chapter 7
Award BIOS Utility

Chapter 8 describes the different settings available in the Award BIOS that comes with the **SBC81200** CPU card. Also contained here are instructions on how to set up the BIOS configuration.

7.1 BIOS Introduction

The Award BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel Celeron processors in a standard IBM-AT compatible I/O system. The BIOS provides critical low-level support for standard devices such as disk drives, serial and parallel ports. It also adds virus and password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

7.2 BIOS Setup

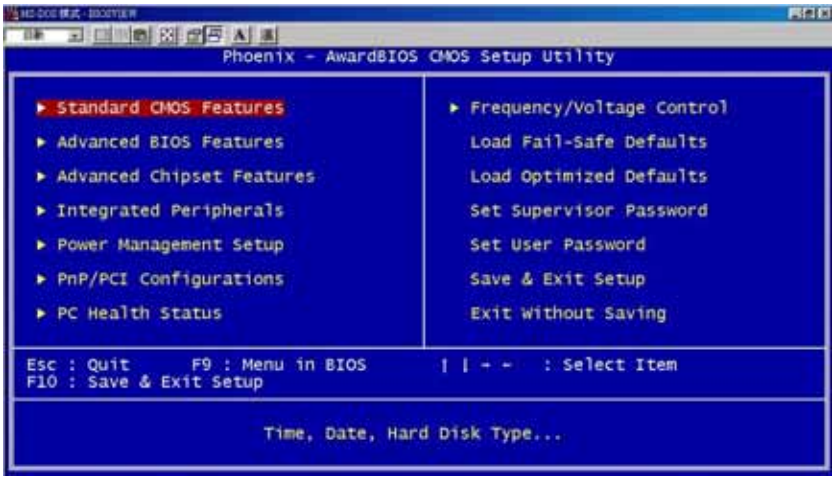
The Award BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn ON the computer, the Award BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system OFF and back ON again. The following message will appear on the screen:

Press <DEL> to Enter Setup

In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change

entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.



The section below the setup items of the Main Menu displays the control keys for this menu. Another section located at the bottom of the Main Menu, just below the control keys section, displays information on the currently highlighted item in the list.

> *NOTE: If you find that your computer cannot boot after making and saving system changes with Setup, the Award BIOS, via its built-in override feature, resets your system to the CMOS default settings.*

We strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both Award and your system manufacturer to provide the absolute maximum performance and reliability.

7.3 Standard CMOS Setup

"Standard CMOS Setup" allows you to record some basic hardware configurations in your computer system and set the system clock and error handling. If the motherboard is already installed in a working system, you will not need to select this option. You will need to run the Standard CMOS option, however, if you change your system hardware configurations, the onboard battery fails, or the configuration stored in the CMOS memory was lost or damaged.

Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Mon, Dec 26 2005
Time (hh:mm:ss) 10 : 27 : 15
IDE Channel 0 Master
IDE Channel 0 Slave
IDE Channel 1 Master
IDE Channel 1 Slave
Drive A [1.44M, 3.5 in.]
Drive B [None]
Video [EGA/VGA]
Halt On [All Errors]
Base Memory 1K
Extended Memory 1K
Total Memory 512K
Item Help
Menu Level ▶
Change the day, month, year and century
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

At the bottom of the menu are the control keys for use on this menu. If you need any help in each item field, you can press the <F1> key. It will display the relevant information to help you. The memory display at the lower right-hand side of the menu is read-only. It will adjust automatically according to the memory changed. The following pages describe each item of this menu.

- **Date**
  The date format is <day>, <month>,<date>, <year>. Press <F3> to show the calendar.

day	The day of week, from Sun to Sat, determined by the BIOS, is read only
date	The date, from 1 to 31 (or the maximum allowed in the month), can key in the numerical / function key
month	The month, Jan through Dec.
year	The year, depends on the year of BIOS

- **Time**
  The time format is <hour> <minute> <second> accepting either function key or numerical key. The time is calculated based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00.

- **IDE Channel 0 Master/IDE Channel 0 Slave/IDE Channel 1 Master/IDE Channel 1 Slave**
  The categories identify the types of one channel that have been installed in the computer. There are 45 predefined types and 2 user definable types are for Enhanced IDE BIOS. Type 1 to Type 45 are predefined. Type User is user-definable.
  Press <PgUp>/<+> or <PgDn>/<–> to select a numbered hard disk type or type the number and press <Enter>. Note that the specifications of your drive must match with the drive table. The hard disk will not work properly if you enter improper information within this category. If your hard disk drive type does not match or is not listed, you can use Type User to define your own drive type manually.
  If you select Type User, related information is asked to be entered to the following items. Enter the information directly from the keyboard and press <Enter>. This information should be provided in the documentation from your hard disk vendor or the system manufacturer.
  If the controller of HDD interface is ESDI, select "Type 1".
  If the controller of HDD interface is SCSI, select "None".
  If the controller of HDD interface is CD-ROM, select "None".

CYLS.	number of cylinders	LANDZONE	landing zone
HEADS	number of heads	SECTORS	number of sectors
PRECOMP	write precom	MODE	HDD access mode

  If there is no hard disk drive installed, select NONE and press <Enter>.

- **Drive A type/Drive B type**
  The category identifies the types of floppy disk drive A or drive B installed in the computer.

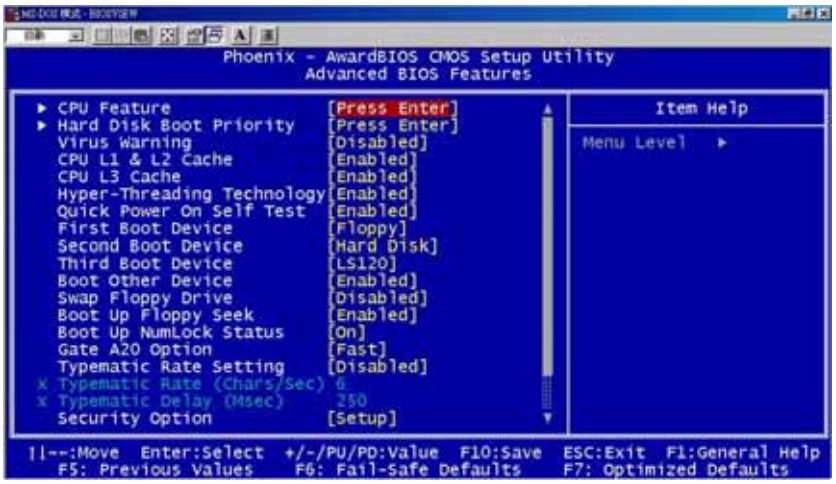
None	No floppy drive installed
360K, 5.25 in	5.25 inch PC-type standard drive; 360Kb capacity
1.2M, 5.25 in	5.25 inch AT-type high-density drive; 1.2MB capacity
720K, 3.5 in	3.5 inch double-sided drive; 720Kb capacity
1.44M, 3.5 in	3.5 inch double-sided drive; 1.44MB capacity
2.88M, 3.5 in	3.5 inch double-sided drive; 2.88MB capacity

- **Halt On**
  This field determines whether the system will halt if an error is detected during power up.

No errors	The system boot will halt on any error detected.
All errors	Whenever the BIOS detects a non-fatal error, the system will stop and you will be prompted.(Default)
All, But Keyboard	The system boot will not stop for a keyboard error; it will stop for all other errors.
All, But Diskette	The system boot will not stop for a disk error; it will stop for all other errors.
All, But Disk/Key	The system boot will not stop for a keyboard or disk error; it will stop for all other errors.

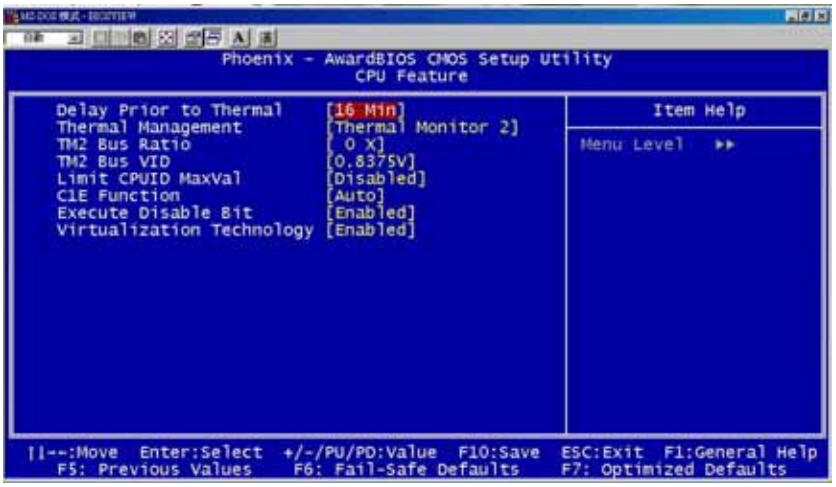
7.4 Advanced BIOS Features

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
CPU Feature [Press Enter]
Hard Disk Boot Priority [Press Enter]
Virus Warning [Disabled]
CPU L1 & L2 Cache [Enabled]
CPU L3 Cache [Enabled]
Hyper-Threading Technology [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [Floppy]
Second Boot Device [Hard Disk]
Third Boot Device [LS120]
Boot Other Device [Enabled]
Swap Floppy Drive [Disabled]
Boot Up Floppy Seek [Enabled]
Boot Up NumLock Status [On]
Gate A20 Option [Fast]
Typematic Rate Setting [Disabled]
x Typematic Rate (Chars/Sec) 6
x Typematic Delay (Msec) 250
Security Option [Setup]
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

7.4.1 CPU Feature

Move the cursor to this fild and press <Enter>. The following screen Will be appeared.


Phoenix - AwardBIOS CMOS Setup Utility
CPU Feature
Delay Prior to Thermal [16 Min]
Thermal Management [Thermal Monitor 2]
TM2 Bus Ratio [0 X]
TM2 Bus VID [0.8375V]
Limit CPUID MaxVal [Disabled]
C1E Function [Auto]
Execute Disable Bit [Enabled]
Virtualization Technology [Enabled]
Item Help
Menu Level ▸▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

The setting on the screen are for reference only. Your version may not be identical to this one.

- **Delay prior to Thermal**
  This filed is used to select the time that would force the CPU to a 50% duty cycle when it excedds uts maximum operating temperature therefore protecting the CPU and the system board From overtheating to ensure a safe computing environment.

- **Thermal Management**
  Thermal Monitor 1 On-die throtting
  Thermal Monitor 2 Ratio and VID transition

- **TM2 Bus Ratio**
  This field is used to select the frequency (Bus Ratio) of the throttled performance state that will be initiated when the on-die sensor turns from cool to hot.

- **TM2 Bus VID**
  This field is used to select the voltage of the throttled performance state that will be initiated when the on-die sensor Turns form cool to hot.

- **Limite CUPID MaxVal**
  The CPUID instruction if some newer CPUs will return a value greater than 3. The default is Disabled because this problem does not exist in the Windows series operating systems. If you are using an operating system other than Windows, this problem

May occur. To avoid this problem, enable this field to limit the return value to 3 or lesser than 3.

7.4.2 Hard Disk Boot Priority

This field is used to select the boot sequence of the hard drives. Move the cursor to this field then press <Enter>. Use the Up or Down arrow keys to select a device then press<+> to move it up or <-> to move it down the list.

- **Virus Warning**
  This item protects the boot sector and partition table of your hard disk against accidental modifications. If an attempt is made, the BIOS will halt the system and display a warning message. If this occurs, you can either allow the operation to continue or run an anti-virus program to locate and remove the problem.

  NOTE:Many disk diagnostic programs, which attempt to access the boot sector table, can cause the virus warning. If you will run such a program, disable the Virus Warning feature.

- **CPU L1 & L2 Cache**
  These fields speed up the memory access. The default value is enabled. Enable the external cache for better performance.

- **CPU L3 Cache**
  This field is used to enable or disable the CPU's L3 cache.

- **Hyper-Threading Technology(For Intel Pentium 4 Processor with Hyper-Threading Technology only)**
  This field is used to enable the functionality of the Intel Pentium 4 Processor with Hyper-Threading Technology and will appear only when using this processor.

- **Quick Power On Self Test**
  This option speeds up Power On Self Test (POST) after you turn on the system power. If set as Enabled, BIOS will shorten or skip some check items during POST. The default setting is *"Enabled"*.

Enabled	Enable Quick POST
Disabled	Normal POST

- **First/Second/Third Boot Device**
  These items allow the selection of the 1st, 2nd, and 3rd devices that the system will search for during its boot-up sequence. The wide range of selection includes Floppy, LS120, ZIP100, HDD0~3, SCSI, and CDROM.

- **Boot Other Device**
  This item allows the user to enable/disable the boot device not listed on the First/Second/Third boot devices option above. The default setting is ***Enabled***.

- Swap Floppy Drive
  This allows you to determine whether to enable Swap Floppy Drive or not. When enabled, the BIOS swaps floppy drive assignments so that Drive A becomes Drive B, and Drive B becomes Drive A. By default, this field is set to ***Disabled.***

- **Boot Up Floppy Seek**
  During POST, BIOS will determine the floppy disk drive type, 40 or 80 tracks, installed in the system. 360Kb type is 40 tracks while 720Kb, 1.2MB and 1.44MB are all 80 tracks. The default value is *"Enabled"*.

Enabled	BIOS searches for floppy disk drive to determine if it is 40 or 80 tracks. Note that BIOS can not tell from 720K, 1.2M or 1.44M drive type as they are all 80 tracks.
Disabled	BIOS will not search for the type of floppy disk drive by track number. There will be no warning message displayed if the drive installed is 360K.

- **Boot Up NumLock Status**
  This option enables and disables the numberlock function of the keypad. The default value is *"On"*.

On	Keypad functions confine with numbers
Off	Keypad functions convert to special functions (i.e., left/right arrow keys)

- **Gate A20 Option**
  This entry allows you to select how gate A20 is handled. Gate A20 is a dveice used to address memory above 1 Mbyte. Initially. gate A20 was handled via the keyboard controller. Today, while keyboard still provide this support, it is more common and much faster for the system chipset to provide support for gate A20.

- **Tyematic Rate Setting**
  Disabled Contiunally holding down a key on your keyboard will cause the BIOS to report that the key is down.

  Enabled The BIOS will not only report that the key is down, but Will first wait for a moment and if the key is still down it will begin to report that the key has been depressed repeatedly. For example you would use such a feature to accelerate cursor movements with the arrow keys. You can then select the typematic rate and typematic delay in the " Tyematic Rate (Chars/Sec) " and " Typematic Delay (Msec) " field below.

- **Typematic Rate (Chars/Sec)**
  This field allows you to select the rate at which the keys are accelerated.
- **Typematic Delay(Msec)**
  This field allows you to select the delay between when the key was first depressed and when the acceleration begins.
- **Security Option**
  This item allows you to limit access to the system and Setup, or just to Setup. The default value is *"Setup"*.

System	The system will not boot and access to Setup will be denied if the incorrect password is entered at the prompt.
Setup	The system will boot, but access to Setup will be denied if the correct password is not entered at the prompt.

NOTE:To disable security, select PASSWORD SETTING at Main Menu and then you will be asked to enter password. Do not type anything, just press <Enter> and it will disable security. Once the security is disabled, the system will boot and you can enter Setup freely.

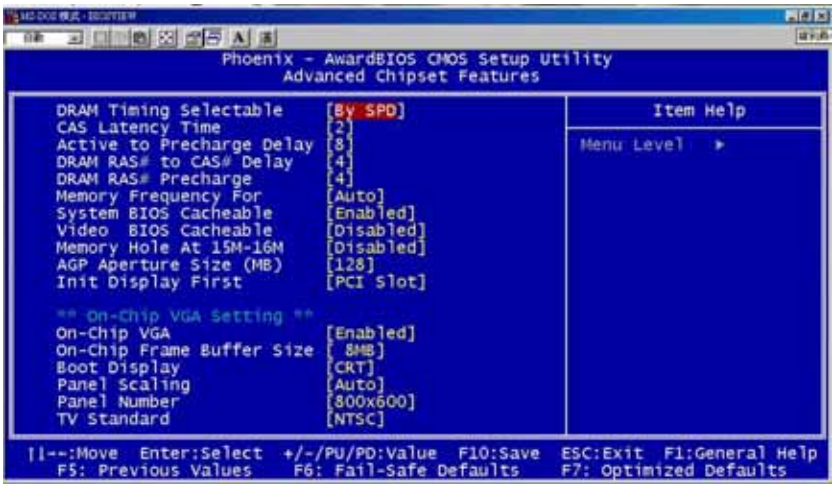
- **APIC Mode**
  Leave this field in its default setting.
- **MPS Version Control for OS**
  This field is used to select the MPS version that the system board is using.

- **OS Select for DRAM >64MB**
  This field allows you to access the memory that is over 64MB in OS/2.

- **Small Logo(EPA) Show**
  Enabled The EPA logo will appear during system boot up.
  Disabled The EPA logo will not appear during system boot-up.

7.5 Advanced Chipset Features

Since the features in this section are related to the chipset on the CPU board and are completely optimized, you are not recommended to change the default settings in this setup table unless you are well oriented with the chipset features.


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
DRAM Timing Selectable [By SPD]
CAS Latency Time [2]
Active to Precharge Delay [8]
DRAM RAS# to CAS# Delay [4]
DRAM RAS# Precharge [4]
Memory Frequency For [Auto]
System BIOS Cacheable [Enabled]
Video BIOS Cacheable [Disabled]
Memory Hole At 15M-16M [Disabled]
AGP Aperture Size (MB) [128]
Init Display First [PCI Slot]
** On-Chip VGA Setting **
On-Chip VGA [Enabled]
On-Chip Frame Buffer Size [8MB]
Boot Display [CRT]
Panel Scaling [Auto]
Panel Number [800x600]
TV Standard [NTSC]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **DARM Timing Selectable**

  This field is used to select the timing of the DRAM.

  By SPD The EEPROM on a DIMM has SPD (Serial Presence Detect) data structure that stores information about the module such as the memory type,memory size, memory speed etc. When this option is selected the system will run according to the information in the EEPROM. This option is the default setting because it provides the most stable condition for the system. The " CAS Latency Time " to " System Memory Frequency " field will show the default settings by SPD.

Manual If you want better performance for your system other than the one " by SPD " select " Manual " then select the best option in the " CAS Latency Time " to " System Memory Frequency " fields.

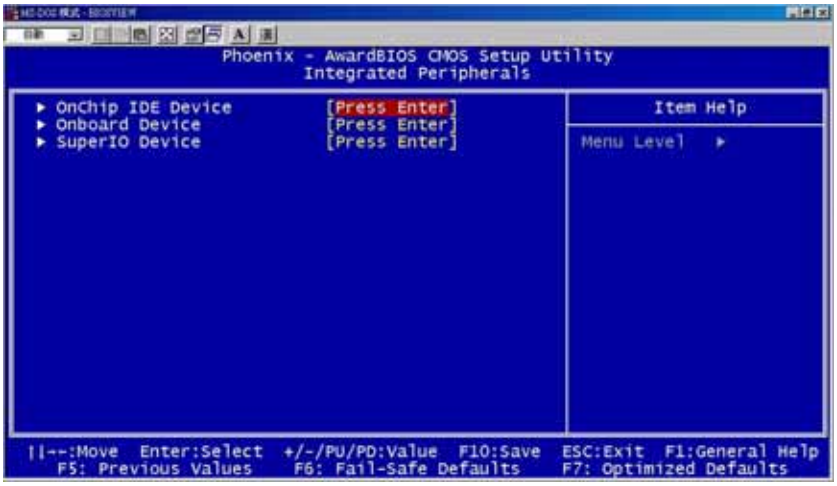
- **CAS Latency Time**
  This field is used to select the latency between the DRAM read command and the time that the data was received
- **DRAM RAS# to CAS# Delay**
  This field is used to select the latency between the DRAM active Command and read/write command.
- **DRAM RAS# Precharge**
  This field is used to select the idle clocks after issuing a precharge command to the DRAM.
- **Precharge Delay**
  The options are Auto, 4,5,6,7,8,9,10,11,12,13,14 and 15.
- **Memory Frequency for**
  This field is used to select the memory clock speed of DIMM.
- **System BIOS Cacheable**
  When this field is enabled, accesses to the system BIOS ROM address at F0000H-FFFFFH are cached, provide that the cache controller is enabled.
- **Video BIOS Cacheable**
  As with caching the system BIOS, enabling the Video BIOS cache will allow access to video BIOS addressed at C0000H to be cached if the cache controller is also enabled. The larger the range of the Cache RAM, the faster the video performance.
- **Memory Hole At 15M-16M**
  You can reserve this area of system memory for ISA adapter ROM. When this area is reserved, it can't be Cached. The user information of peripherals that need to use this area of system memory usually discusses their memory requirements.

- **AGP Aperture Size (MB)**
  This field determines the effective size of the Graphic Aperture used for a particular GMCH configuration. It can be updated by the GMCH-specific BIOS configuration sequence before the PCI standard bus enumeration sequence takes place. If it is not updated then a default value will select an aperture of maximum size.

- **Init Display First**
  This item allows you to decide to active whether PCI Slot or on-chip VGA first.
- **Onchip VGA Enable/Dis**
  You can use this item to select onchip VGA for the main system VGA.
- **On-chip Frame Buffer Size**
  On-chip Frame buffer size can be set to1MB or 8MB.
- **Boot Display**
  This feature allows user to select which type of the display device are going to be used for system. This feature is set to " Auto ".
- **Panel Scaling (Option)**
  Use this feature to auto or force scaling the connected panel accordingly. Most of the retail sold panels are equipped with scalar already. It is recommended to set this feature as " Auto ".
- **Panel Number (Option)**
  This feature allows user to select the type of the panel which is going to be used on the system.
- **TV Standard (Option)**
  Select TV Mode NTSC/PAL if Support TV output.

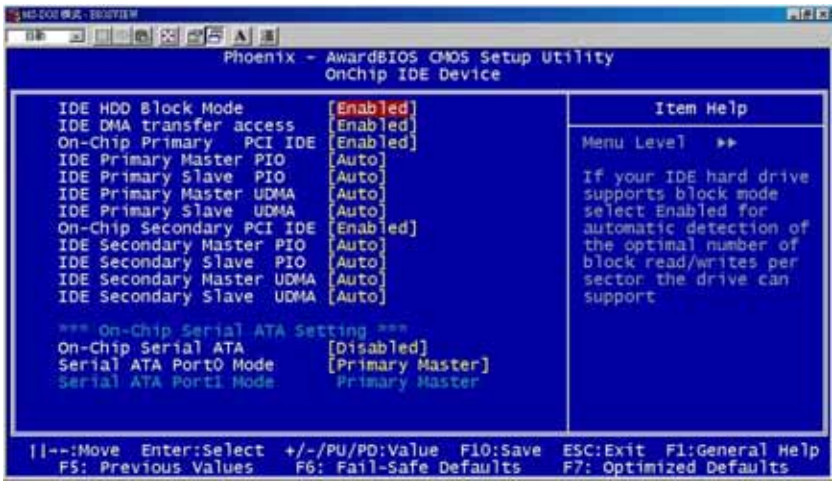
7.6 Integrated Peripherals

This option sets your hard disk configuration, mode and port.


Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
OnChip IDE Device [Press Enter]
Onboard Device [Press Enter]
SuperIO Device [Press Enter]
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

7.6.1 On-Chip IDE Device

Move the cursor to this field and press <Enter>. The following screen will be appeared.


Phoenix - AwardBIOS CMOS Setup Utility
OnChip IDE Device
IDE HDD Block Mode [Enabled]
IDE DMA transfer access [Enabled]
On-Chip Primary PCI IDE [Enabled]
IDE Primary Master PIO [Auto]
IDE Primary Slave PIO [Auto]
IDE Primary Master UDMA [Auto]
IDE Primary Slave UDMA [Auto]
On-Chip Secondary PCI IDE [Enabled]
IDE Secondary Master PIO [Auto]
IDE Secondary Slave PIO [Auto]
IDE Secondary Master UDMA [Auto]
IDE Secondary Slave UDMA [Auto]
*** On-Chip Serial ATA Setting ***
On-Chip Serial ATA [Disabled]
Serial ATA Port0 Mode [Primary Master]
Serial ATA Port1 Mode Primary Master
Item Help
Menu Level ▸▸
If your IDE hard drive supports block mode select Enabled for automatic detection of the optimal number of block read/writes per sector the drive can support
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **IDE HDD Block Mode**
  Enabled The IDE HDD uses the block mode. The system BIOS will check the hard disk drive for the maximum block size the system can transfer. The block size will depend on the type of hard disk drive.

  Disabled The IDE HDD uses the standare mode.

- **IDE DMA Transfer Access**
  This field when Enabled will enhance the IDE DMA transfer of an IDE hard disk drive.

- **On-Chip Primary PCI IDE**
  These fields allow you to enable or disable the primary and secondary IDE controller, select Disabled if you want to add a Different hard drive controller.

- **IDE Primary Master PIO and IDE Primary Slave PIO**
  PIO means Programmed Input/Output Rather than have the BIOS issue a series of commands to effect a transfer to or from the disk drive, PIO allows the BIOS to tell the controller what it wants and then let the controller and the CPU perform the complete task by themselves. Your system supports five modes, 0 (default) to 4, which primarily differ in timing. When Auto is selected the BIOS will select the best available mode after checking your drive.

  Auto The BIOS will automatically set the system according to your hard disk timing.

  Mode 0-4 You can select a mode that matches your hard disk timing. Caution : Do not use the wrong setting or you will have drive errors.

- **IDE Primary Master UDMA and IDE Primary Slave UDMA**
  These fields allow you to set the Ultra DMA in use. When Auto is selected the BIOS will select the best available option after checking your hard drive or CD ROM.

  Auto The BIOS will automatically detect the settings for You.

  Disabled The BIOS will not detect these categories.

- **On-Chip Serial ATA**

  Disabled Disables the onboard SATA

Auto	The system will detect the existing SATA and IDE drives then automatically se them To the available Master / Slave Mode.
Combined Mode	This option allows you to use both IDE and SATA drives; allowing a maximum od 4 drives-1 IDE Master; 1 IDE Slave and 2 SATA. You must manually set the SATA and PATA drives mode in the " PATA IDE Mode " and " SATA Port " fields.
Enhanced Mode	This option allows you to use both IDE and SATA drives; allowing a maximum of 6 drives – 1 IDE Master, 1 IDE Slave and 4 SATA.
SATA Only	This option automatically sets the SATA drives to Primary Master mode. Since the SATA drives are in Master mode, you can not set the IDE drive to Master mode.

- **PATA IDE Mode**
  This field is used to select the function mode for IDE 1 connector and its relation to the SATA ports,

Primary	IDE 1 serves as Primary Master and Primary Slave channel. SATA 2 and SATA 4 serves as Secondary Master and Secondary Slave channel. SATA 1 and SATA 3 are disabled.
Secondary	IDE 1 serves as Secondary Master and Secondary Slave channel. SATA 1 and SATA 3 serves as Primary Master and Primary Slave channel. SATA 2 and STATA 4 are disabled.

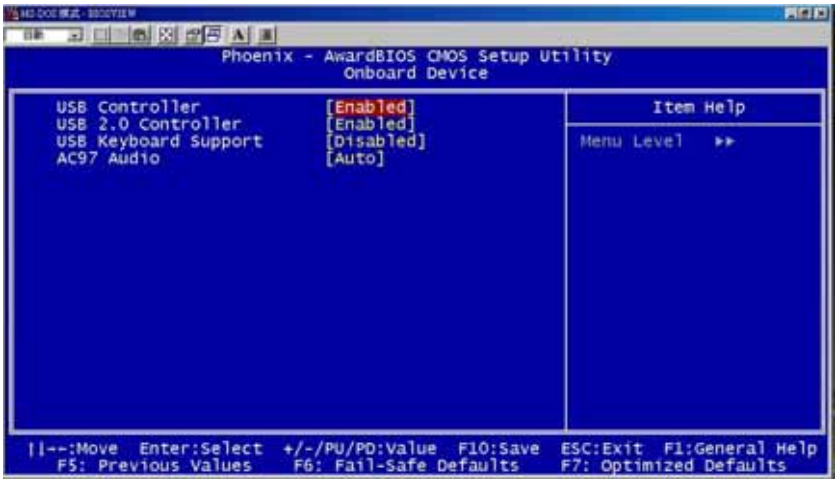
- **SATA Port**
  If the " PATA IDE Mode " field is set to Primary, this field will show" P1, P3 is Secondary; meaning SATA 2 and SATA 4 are Secondary.

  If the " PATA IDE Mode " field is set to Secondary, this field will

show " P0, P2 is Primary "; meaning SATA 1 and SATA 3 are Primary.

7.6.2 Onboard Device

Move the cursor to this field and press <Enter>. The following Screen will be appeared.


Phoenix - AwardBIOS CMOS Setup Utility
Onboard Device
USB Controller [Enabled]
USB 2.0 Controller [Enabled]
USB Keyboard Support [Disabled]
AC97 Audio [Auto]
Item Help
Menu Level ▸▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **USB Controller**

  Enabled Enables the onboard USB
  Disabled Disables the onboard USB

- **USB 2.0 Controller**
  Select Enabled if your system contains a Universal Serial Bus V2.0 (USB2.0) controller and you have USB2.0 peripherals. The choice: Enabled, Disabled.

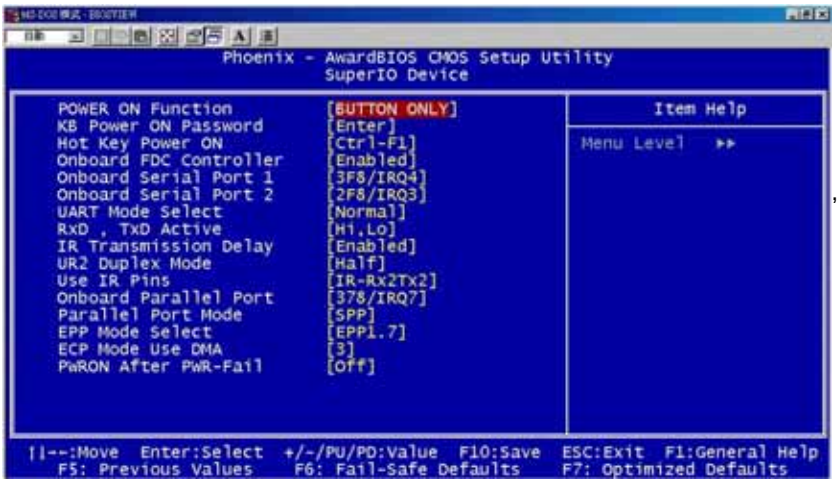
- **USB Keyboard Support**
  Select *Enabled* if your system contains a Universal Serial Bus (USB) controller and you have a USB keyboard.

- **AC97 Audio**
  Auto Select this option when using the onboard audio CODEC.

  Disabled Select this option when using a PCI sound card.

7.6.3 Super IO Device

Move the cursor to this field and press < Enter >. The following screen will be appeared.


Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Device
POWER ON Function [BUTTON ONLY]
KB Power ON Password [Enter]
Hot Key Power ON [Ctrl-F1]
Onboard FDC Controller [Enabled]
Onboard Serial Port 1 [3F8/IRQ4]
Onboard Serial Port 2 [2F8/IRQ3]
UART Mode Select [Normal]
RxD , TxD Active [Hi,Lo]
IR Transmission Delay [Enabled]
UR2 Duplex Mode [Half]
Use IR Pins [IR-Rx2Tx2]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
EPP Mode Select [EPP1.7]
ECP Mode Use DMA [3]
PwRON After PWR-Fail [Off]
Item Help
Menu Level ▸▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **Power On Function**
  This field allows you to use the keyboard or PS/2 mouse to power on the system.

Button only	Default setting. Uses the power button to power on the system.
Password	When this option is selected, set the password you would like to use to power on the system in the " KB Power On Password " field.
Hot Key	When this option is selected, select the function key you would like to use the power on the system in the " Hot Key Power On " field.
Mouse Move	When this option is selected, move the mouse to power on the system.
Mouse Click	When this option is selected, click the mouse button to power on the system.

Any Key	Press any key to power on the system.
Keyboard 98	When this option is selected, press the " wake up " key of the windows 98 compatible keyboard to power on the system.

- **KB Power On Password**
  Move the cursor to this field and press < Enter >. Enter your password. You can enter up to 5 characters. Type in exactly the same password to confirm, then press < Enter >.

  The power button will not function once a keyboard password has been set in this field. You must type the correct password to power on the system. If you forgot the password, power off the system and remove the battery.

- **Hot Key Power ON**

  This field is used to select a function key that you would like to use to power on the system.

- **Onboard FDC Controller**

Enabled	Enabled the onboard floppy disk controller.
Disabled	Disabled the onboard floppy disk controller.

- **UART Moe Select**
  This field is used to select the type of IrDA standard supported by your IrDA device. For better transmission of data, your IrDA peripheral device must be within a 30 degree angle and within a distance of I metter.

- **UR2 Duplex Mode**

Half	Data is completely transmitted before receiving Data
Full	Transmits and receives data simultaneously.

- **Onboard Parallel Port**
  378/IRQ7, 3BC/IRQ7, 278/IRQ5 Select the I/O address and IRQ for the onboard parallel port.

  Disabled Disables the onboard parallel port.

- **Parallel Port Mode**

  The options are SPP, EPP, ECP and ECP+EPP. These apply to a Standard specification and will depend on the type and speed of You device. Refer to your peripherals manual for the best option.

  SPP – Allows normal speed operation but in one direction only.

  ECP (Extended Capabilities Port) – Allow parallel port to operate in bidirectional mode and at a speed faster then the normal mode's data transfer rate.

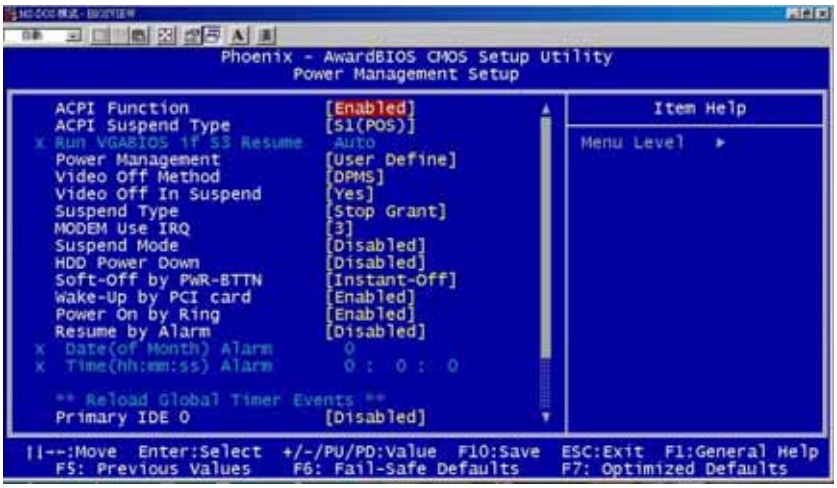
  EPP (Enhanced Parallel Port) – Allows bidirectional parallel port operation at maximum speed.

- **ECP mode Use DMA**
  This is used to slect a DMA channel of the parallel port.

- **PWRON After PWR-Fail**
  This item allows you to select if you want to power on the system after power failure.

7.7 Power Management Setup

The Power Management Setup allows you to save energy of your system effectively. It will shut down the hard disk and turn OFF video display after a period of inactivity.


Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI Function [Enabled]
ACPI Suspend Type [S1(POS)]
x Run VGABIOS if S3 Resume Auto
Power Management [User Define]
Video Off Method [DPMS]
Video Off In Suspend [Yes]
Suspend Type [Stop Grant]
MODEM Use IRQ [3]
Suspend Mode [Disabled]
HDD Power Down [Disabled]
Soft-Off by PWR-BTTN [Instant-Off]
Wake-Up by PCI card [Enabled]
Power On by Ring [Enabled]
Resume by Alarm [Disabled]
x Date(of Month) Alarm 0
x Time(hh:mm:ss) Alarm 0 : 0 : 0
** Reload Global Timer Events **
Primary IDE 0 [Disabled]
Item Help
Menu Level ▸
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **ACPI Function**
  This function ahould be enabled only in operating systems that support ACPI. Currently, only Windows 2000/ME/XP supports this function. If you want to use the Suspend to RAM function, Make sure this field is enabled then select " S3(STR)" in the ACPI Suspend Type " field.

- **ACPI Susppend Type**
  This field is used to select the type of Suspend mode.

S1(POS)	Enables the Power On Suspend function.
S3(STR)	Enables the Suspend to RAM function.

- **Power Management**
  This field allows you select the type(or degree) of power saving by changing the length of idle time that elapses before the Suspend mode and HDD Power Down fields are activated.

Min Saving	Minimum power saving time for the Suspend Mode(1 hour) and HDD Power Down (15 min.)

Max Saving Maximum power saving time for the Suspend Mode and HDD Power Down =1 min.

User Define Allows you to set the power saving time in the " Suspend Mode " and " HDD Power Down " fields.

- **Video Off Method**
  This determines the manner in which the monitor is blqnked.

  V/H SYNC + Blank This selection will cause the system to turn off the vertical and horizontal synchronization ports and write blanks to the video buffer.

  Blank Screen This option only writes blanks to video buffer.

  DPMS Inititalizes display power management Signaling. Use this option if your video board supports it.

- **Video Off In Suspend**
  This field is used to activate the video off feature when the system enters the Suspend mode. The options are Yes or No.

- **Suspend Type**
  The options are Stop Grant and PwrON Suspend.

- **MODEM Use IRQ**
  This field is used to set an IRQ channel for the modem installed in your system.

- **Suspend Mode**
  This is selectable only when the Power Management field is set to User Define. When the system enters the Suspend mode according to the power saving time selected, the CPU and onboard peripherals will be shut off.

- **HDD Power Down**
  When enabled and after the set time of system inactivity, the hard disk drive will be powered down while all other devices remain active.

- **Soft-Off by PWR-BTTN**
  Pressing the power button for more than 4 seconds forces the

system to enter the Soft-Off state when the system has "hung." The choice: Delay 4 Sec, Instant-Off.

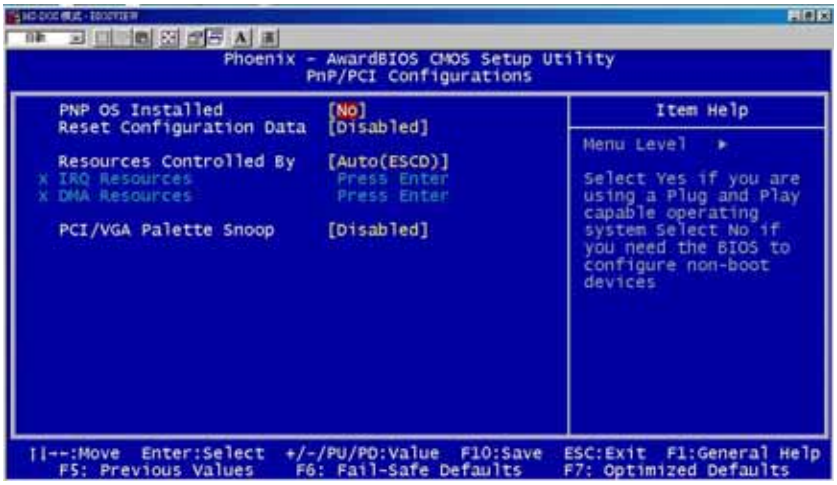
- **Wake-Up By PCI card**
  If this item is enable, it allows the system to resume from a software power down or power saving mode whenever there is an Incoming call to an installed fax/modem. This function needs to be supported by the relevant hardware and software.

- **Power On by Ring**
  An input signal on the serial Ring Indicator (RI) line (in other words, an incoming call on the modem) awakens the system from a soft off state.
  The choice: Enabled, Disabled.

- **Resume by Alarm**
  When *Enabled,* your can set the date and time at which the RTC (real-time clock) alarm awakens the system from Suspend mode.
  The choice: Enabled, Disabled.

7.8 PNP/PCI Configuration

This section describes configuring the PCI bus system. PCI, or Personal Computer Interconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its own special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.


Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
PNP OS Installed [No]
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
X IRQ Resources Press Enter
X DMA Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
Item Help
Menu Level ▶
Select Yes if you are using a Plug and Play capable operating system Select No if you need the BIOS to configure non-boot devices
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **Reset Configuration Data**

  Enabled The BIOS will reset the Extended System Configuration Data (ESCD) once automatically. It will then recreate a new set of configuration data.

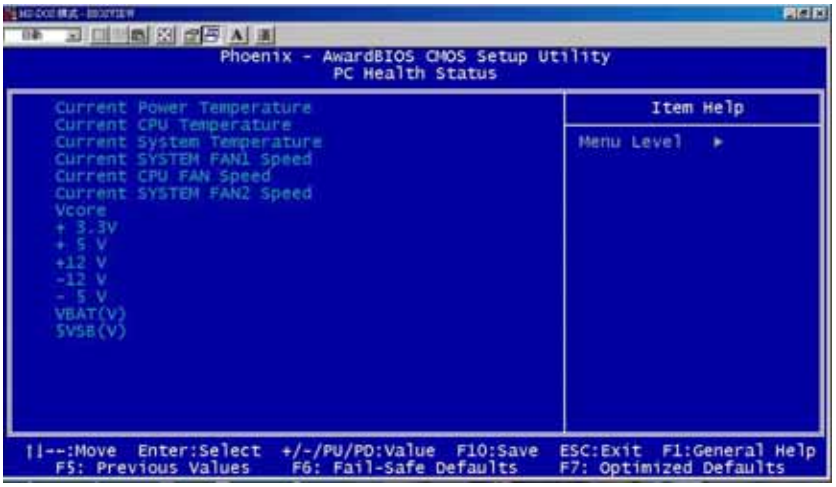
  Disabled The BIOS will not reset the configurationb data.

- **Resource controlled by**
  The Award Plug and Play BIOS has the capacity to automatically configure all of the boot and Plug and Play compatible devices. However, this capability means absolutely nothing unless you are using a Plug and Play operating system such as Windows®98. The options available are Auto and Manual.

- **IRQ Resources**
  When resources are controlled manually, assign each system interrupt a type, depending on the type of device using the interrupt.
  .

7.9 PC Health Status

This option configures the PCI bus system. All PCI bus systems on the system use INT#, thus all installed PCI cards must be set to this value.

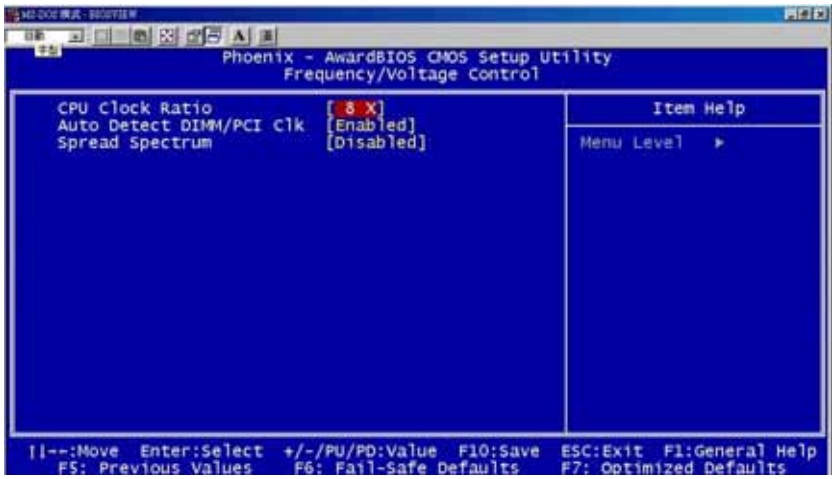


- **Current Power Temperature.**
  The current system power will be detected automatically.
- **Current CPU Temperature.**
  The current system CPU temperature will be automatically detected by the system.
- **Current SYSTEM Temperature.**
  Show you the current system1 temperature.
- **Current SYSTEM FAN1 Speed**
  Show you the current system fan1 temperature.
- **Current CPU FAN Speed**
  These optional and read-only fields show the current speeds in RPM (revolution per minute) for the CPU fan and chassis fan as monitored by the hardware monitoring IC.
  RPM(Revolutions Per Minute)
- **Current SYSTEM FAN2 Speed.**

Show you the current system fan1 temperature.

- **+3.3V/+5V/+12V/-12V/-5V/VBAT(V)/5VSB**
  Show you the voltage of +3.3V/+5V/+12V/-12V/-5V.

7.10 Frequency/Voltage Control


Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
CPU Clock Ratio [8 X]
Auto Detect DIMM/PCI Clk [Enabled]
Spread Spectrum [Disabled]
Item Help
Menu Level ▶
↑↓→←:Move Enter:Select +/-/PU/PD:Value F10:Save ESC:Exit F1:General Help
F5: Previous Values F6: Fail-Safe Defaults F7: Optimized Defaults

- **CPU Clock Ratio**
  This field is used to select the CPU's frequency

- **Auto Detect PCI Clk**
  Leave this field in its default setting. Do not alter this setting unless advised by an engineer or technician.

- **CPU Clock**
  This field procides several options for selecting the external system bus clock of the processor; the available options allow you to adjust the processor's bus clock by 1MHZ increment.

7.11 Load Optimized Defaults

When you press <Enter> on this item you get a confirmation dialog box with a message similar to:

Load Optimized Defaults (Y/N)? N

Pressing "Y" loads the default values that are factory settings for optimal performance system operations

7.12 Supervisor/User Password Setting

You can set either supervisor or user password, or both of then. The differences between are:

Set Supervisor Password: can enter and change the options of the setup menus.

Set User Password: just can only enter but do not have the right to change the options of the setup menus. When you select this function, the following message will appear at the center of the screen to assist you in creating a password.

ENTER PASSWORD:

Type the password, up to eight characters in length, and press <Enter>. The password typed now will clear any previously entered password from CMOS memory. You will be asked to confirm the password. Type the password again and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To disable a password, just press <Enter> when you are prompted to enter the password. A message will confirm the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup freely.

PASSWORD DISABLED.

When a password has been enabled, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also require

the BIOS to request a password every time your system is rebooted.This would prevent unauthorized use of your computer.

You determine when the password is required within the BIOS Features Setup Menu and its Security option (see Section 3). If the Security option is set to "System", the password will be required both at boot and at entry to Setup. If set to "Setup", prompting only occurs when trying to enter Setup.

7.13 Exit Setting

Save & Exit Setup

Pressing <Enter> on this item asks for confirmation:

Save to CMOS and EXIT (Y/N)? Y

Pressing "Y" stores the selections made in the menus in CMOS – a special section of memory that stays on after you turn your system off. The next time you boot your computer, the BIOS configures your system according to the Setup selections stored in CMOS. After saving the values the system is restarted again.

Exit Without Saving

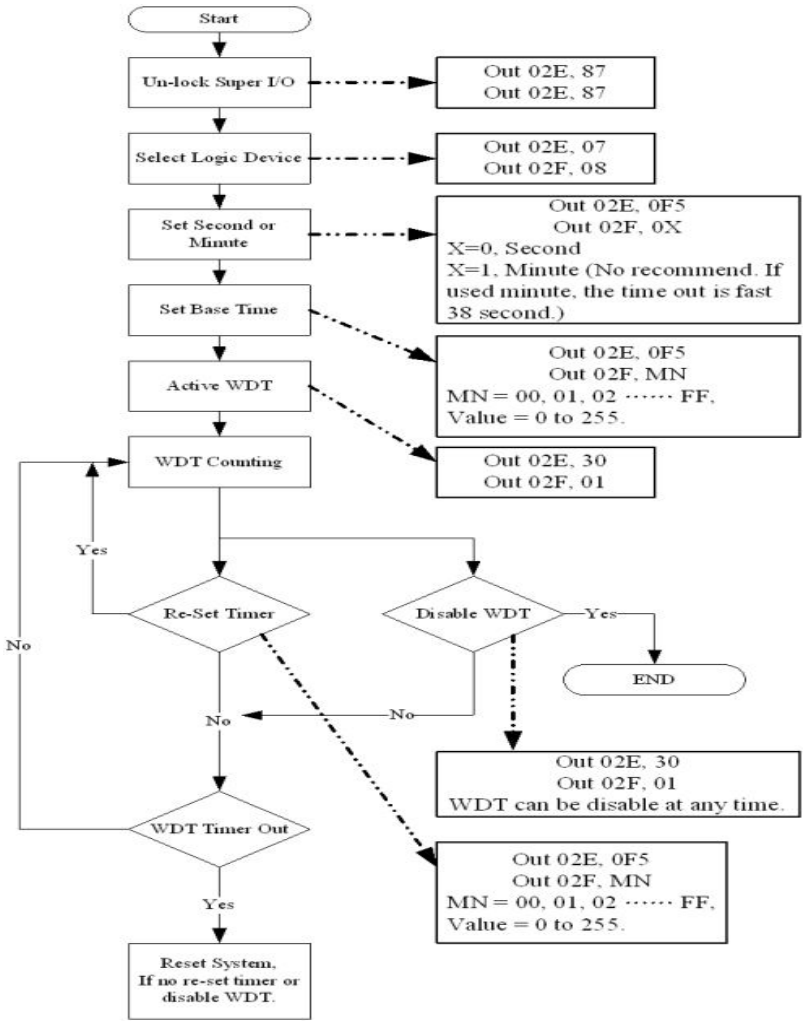
Pressing <Enter> on this item asks for confirmation:

Quit without saving (Y/N)? Y

This allows you to exit Setup without storing in CMOS any change. The previous selections remain in effect. This exits the Setup utility and restarts your compute

Appendix A
Watchdog Timer

Please follow the below WDT process for setup the WDT function.



Appendix B
PCI IRQ Routing

PICMG PCI IRQ Routing

Device	ID	Slot	Int
PCI Slot 0	31	0	BCDA
PCI Slot 1	30	1	CDAB
PCI Slot 2	29	2	DABC
PCI Slot 3	28	3	ABCD

On Board Device IRQ Routing

Device	ID	Slot	Int
PCI-ISA Bridge	22	4	
Mini-PCI 1	26	5	CD